

Index of Winter Severity for January 1, 2004 Yellowstone National Park

Winter Range	For Winter of 2004 to Jan 1 Feb 1 Mar 1 Apr 1
<u>Elk</u>	
Northern Range in Montana	-0.7
Lower Northern Range in YNP	0.0
Upper Northern Range (Lamar)	0.3
Madison-Firehole	-1.0
Upper Gallatin	-0.4
<u>Bison</u>	
Lower Northern Range in YNP	-1.6
Upper Northern Range (Lamar)	-0.2
Pelican-Hayden Valley	-2.0
Madison-Firehole	-3.0
<u>Mule Deer</u>	
Lower Northern Range	-0.6
<u>Pronghorn</u>	
Lower Northern Range	-0.6

Season Summary

This winter's snowpack is above average on all the winter ranges with the exception of those in the northeastern corner of Yellowstone National Park where snow water equivalent values are below the 30-year average for the first of January. Temperature conditions so far this winter have been milder than average, but forage production indices for last summer are at or near the lowest values on record.

About the IWS

The Index of Winter Severity (IWS) is obtained by combining snow water equivalent, critical temperature, and forage availability components to reflect conditions on the winter range. The IWS has a scale from +4 to -4, with +4 representing the mildest conditions and -4 indicating the most severe conditions. The IWS is calculated for each winter range and each species to represent the variation from the norm. It is intended to provide a spatially and temporally standardized indication of climatic conditions on the winter range. The response of individual animals, or groups of animals will vary depending on a variety of factors.

The IWS procedure is described in detail in our report Snowpack Distribution Across Yellowstone National Park, Wyoming. This report, along with daily weather data for the area, historical IWS values, and maps of the winter ranges are available online at <http://nrin.nbii.gov/climate/>.

Snowpack conditions

	Snow Water Equivalent, Inches		
	Avg*	Percent of	
	Jan 1	Jan 1	Average
Canyon Pillow	6.4	6.1	105%
Crevice Mountain snow course	NM		
Hebgen Dam snow course	5.9	5.1	116%
Lake Camp snow course	5.2	4.2	124%
Lamar RS CLIM	1.2	1.6	75%
Lupine Creek snow course	5.0	4.3	116%
Norris Basin snow course	5.2	5.1	102%
Northeast Entrance Pillow (new)	3.7	5.0	74%
Old Faithful snow course	9.1	6.0	152%
Tower RS CLIM	2.0	2.1	95%
Twenty One Mile snow course	7.7	7.3	105%
West Yellowstone Pillow (new)	7.1	5.9	120%
Whiskey Creek Pillow	10.1	7.5	135%
Yellowstone Park (Mammoth) CLIM	1.1	1.0	110%

-4.0 Worst Winter 0.0 About Average Winter +4.0 Mildest Winter

Index for elk uses 45% snow variable, 35% temperature variable (0°F) and 20% forage variable.

Index for bison uses 70% snow variable and 30% forage variable.

Index for mule deer uses 50% snow variable, 30% temperature variable (0°F) and 20% forage variable.

Index for pronghorn uses 55% snow variable, 30% temperature variable (32°F) and 15% forage variable.

* 1971-2000 Base Period

NM – not scheduled for measurement

CLIM SWE is estimated from the weather data. The procedure is described in detail in our report Snow-pack Distribution Across Yellowstone National Park, Wyoming.

Note see: <http://www.mt.nrcs.usda.gov/swcs/index.html> or http://www.wcc.nrcs.usda.gov/water/w_data.html for a complete list of snow measurements in the area.

The Index of Winter Severity program is a cooperative effort of the USGS Northern Rocky Mountain Science Center's Greater Yellowstone Initiative and Snowcap Hydrology, Bozeman, MT